Enis Tuncer, PhD
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Germany
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Personal details
Born in Kayseri/Turkey 20.Feb.1972
Turkish Citizen / Permanent resident in Sweden / Holding working permit for Germany

Objective
To work in a dynamic R&D environment to develop new methodologies in physical modeling.

Skills
Have experience in scientific computing, dielectrics, circuit theory, polymer physics, composite materials, mechanical, magnetic, optical, electrical, piezoelectric properties of materials, complex systems, cellular automata modeling, recursive algorithms, data analysis, disordered materials, percolation, impedance spectroscopy, thermally stimulated and isothermal transient current, high voltage technology, experimental physics, cellular and porous materials.

Education

Chalmers University of Technology **Gothenburg Sweden**
PhD - High Voltage Engineering/Material Science, October 2001
Ph.D. program in Electrical and Computer Engineering, Department of Electric Power Engineering, the dissertation title is 'Dielectric relaxation in dielectric mixtures' (http://fy.chalmers.se/~tuncer/Thesis.pdf).
Advisor: Prof. Stanislaw M. Gubanski
Related courses include: Electromagnetic field theory, solid state physics, computational physics, the finite element method, dielectrics, dielectric relaxation, composite materials, polymers, geometry and structure.

Other - Electrical Engineering, April 2000
Technical Licenciate (an intermediate degree in the Ph.D. program) Electrical and Computer Engineering, Department of Electric Power Engineering, the thesis title is 'Dielectric properties of composite structures and filled polymeric composite materials'. Advisor: Prof. Stanislaw M. Gubanski

Master of Science - Physics and Engineering Physics, October 1996
Master of Science in NanoPhysics, Physics and Engineering Physics Department, the thesis title is 'Nanoelectronics: Quantum Cellular Automata'. Advisor: Prof. Magnus Willander.

Middle East Technical University **Ankara Turkey**
Master of Science - Astrophysics, 1995
Attended the Master of Science in Physics program with emphasis in Astrophysics (Stellar populations).

Bachelor of Science - Physics, June 1994
Major in Physics with special emphasis in Astronomy and Astrophysics.

Ankara Atatuerk Anadolu Lisesi **Ankara Turkey**
High School, August 1989

Experience

Dec 2002-Dec 2004 **Department of Physics, University of Potsdam** **Potsdam Germany**
Staff Scientist
- Characterization of polymeric materials using frequency- and time-domain dielectric (impedance) specroscopy, differential scanning calorimetry.
- Analyzing dielectric properties of polymers by means of distribution of relaxation times (own algorithm invention).
- Modeling electro-active properties of polymers and electret materials using the finite element method.
- Teaching physics of dielectrics to students.

Jan 2002-Dec 2002 **Alstom Power Sweden** **Vaesteraas Sweden**
R & D Staff Member
- Enrolled in development project of patented new electric generator PowerFormerTM.
- Project considers Grid Interaction of the new generator by taking into account the cable design, voltage and current quality, current limiting with nonlinear components, etc.
- Responsible for electrical measurements and reliability tests on stator cables and other electrical components(materials). Contact resistance investigations between cables and machine slots.

- Conducting transmission line analyses on cables, which are used in new generators, for modeling and diagnostics purposes with network analysis techniques.
- Possible machine models for PowerFormerTM are being constructed for transient analysis.

Jan 1997-Dec 2001 **Chalmers University of Technology** **Gothenburg Sweden**
Doktorand
- Applied the finite element method (FEM) to understand polarization and conduction in ordered and disordered binary dielectric mixtures in frequency domain
- Applied the Monte Carlo technique to investigate influences of different material parameters on dielectric properties of composites and to resolve relaxation
- Investigated performance and aging of polymeric composite materials under different stresses using dielectric spectroscopy in the time and frequency domains
- Developed codes to analyze dielectric data in isothermal and thermally stimulated conditions and to generate structures for finite element calculations
- Worked in industrial projects to improve product performance. Designed a cable connector plug for ABB Kabledon, Alingsaas, Sweden
- Prepared introduction to the FEM lectures and material (dielectric) characterization laboratories

Apr 1998-Oct 1998 **Asea Brown Boveri Corporate Research** **Vaesteraas Sweden**
Intern
- Fabricated silicone rubber based composite films. Performed isothermal and thermally stimulated measurements on the films
- Investigated effects of filler content and of composite microstructure on dielectric properties

Jun 1993-Aug 1995 **High Energy Astrophysics Research Unit** **Ankara Turkey**
Research Asistant
- Investigated possible progenitors of compact stars
- Made open cluster observations at MIT-Dartmouth Observatory, Kitt-Peak AR, USA
- Explored spatial correlation between supernova remnants and pulsars, and supernova remnants and X-ray binaries

Extracurricular

Referees of Journal Applied Physics, Journal of Physics D: Applied Physics, Journal of Physics: Condensed Matter, International Journal of Electronics
Members of the Institute of Physics, IOP Dielectrics Group, IEEE, Dielectrics and Electrical Insulation Society (DEIS)
2003-2004 Head Coach for Spandau Under-20 Men's Basketball Berlin Germany
1998-2001 The Swedish Foundation for Strategic Research (Stiftilsen foer Strategisk Forskning) fellow
1994 Hueseyin Tugach Foundation fellow, the Scientific and Technical Research Council of Turkey
1993 Rotary Young Leadership Award (RYLA), District 2430 (Elected the Young Leader of the Year)
1998-1999 Treasurer, Gothenburg Student Sports Association (Goeteborgs Studenters Idrotts Foerening GSIF)
1997-2002 Championship Medals, the Western 2nd and 3rd divisions of Swedish Basketball League in various teams

Familiar with

FORTRAN, C, Matlab, FEMLAB, PLECS, Matematica, LabView, Dataplot, LaTeX, ACE field calculation software, Unix and Linux.

List of possible referees

- Prof. Stanislaw Gubanski, Department of Electric Power Engineering, Chalmers University of Technology, SE-412 96 Gothenburg Sweden, stanislaw.gubanski@elkraft.chalmers.se
- Prof. Reimund Gerhard-Multhaupt, Department of Physics, University of Potsdam, D-14469 Potsdam Germany, rgm@rz.uni-potsdam.de
- Dr. Emre Tuncer, Director of product development, Magma Design Automation, Cupertino, CA USA, emre@magma-da.com.
- Dr. Uno Gaefvert, Senior Scientist, Department of High Voltage Engineering, ABB Corporate Research, SE-721 78 Vaesteraas Sweden, uno.gafvert@secrc.abb.se
- Dr. Bo Nettelblad, Research associate, Ericsson Microwave Systems, SE-431 84 Moelndal Sweden, Bo.Nettelblad@emw.ericsson.se
- Prof. M. Ali Alpar, Sabanci Universitesi, MDBF, Orhanli-Tuzla TR-81474, Istanbul, Turkey, alpar@sabanciuniv.edu
- Tek. Lic. Jan Boivie, Alstom Power Generation, HGE/HB, SE-721 76 Vaesteraas, Sweden, jan.boivie@power.alstom.com

Publications

Thesis

- E. Tuncer, "Nanoelectronics: Quantum Cellular Automata", October 1996, M.Sc. Thesis, Physics Department, Chalmers University of Technology.
- ____, "Dielectric properties of composite structures and filled polymeric composite materials", April 2000, Licenciate Thesis Tech. Rep. 338 L, Department of Electric Power Engineering, Chalmers University of Technology.
- ____, "Dielectric relaxation in dielectric mixtures", November 2001, Ph.D. Thesis,Tech. Rep. 408, Chalmers University of Technology.

Reviewed Journal Papers

- E. Tuncer, Signs of low frequency dispersions in disordered binary dielectric mixtures (50-50), J. of Phys. D: Appl. Phys. in press (2003).
- ____, `How round is round? On accuracy in complex dielectric permittivity calculations: A finite-size scaling approach', Doga: Turk. J. of Physics, 27(2003) 121-131, Full text. [*arXiv:cond-mat/0107384.*]
- E. Tuncer, and E. Tuncer, `On complex permittivity of dilute random dielectric mixtures in two-dimensions', Doga: Turk. J. of Physics, in press (2003), Full text. [*arXiv:cond-mat/0109170*]
- E. Tuncer, B. Nettelblad and S.M. Gubanski, `Non-Debye Dielectric Relaxation in Binary Dielectric Mixtures (50-50): effects of randomness and regularity in mixture topology', Journal of Applied Physics, vol 92 no. 8, pp4612-4624, 2002, Full text..
- E. Tuncer and S. M. Gubanski: `On numerical simulations of composite dielectrics in thermally stimulated conditions', Doga: Turkish Journal of Physics 26, pp133-156 2002, Full text.
- ____, `On dielectric data analysis: Introduction of the Monte Carlo method to obtain distribution of relaxation times and its comparison with a functional approach', IEEE Transactions on Dielectrics and Electrical Insulation, vol. 8, pp 310-320, June 2001.
- ____, `Electrical properties of filled silicone rubber', Journal of Condensed Matter Physics, vol. 12, no. 8, pp 1873-1897, 2000.
- E. Tuncer, S. M. Gubanski and B. Nettelblad, `Electrical properties of 4x4 binary dielectric mixtures', Journal of Electrostatics, volume 56 issue 4, pp 449-463, 2002.
- ____, `Dielectric Relaxation in Dielectric Mixtures: Application of the Finite Element Method and its Comparison with Mixture Formulas', Journal of Applied Physics, vol. 89, no. 12, pp 8092-8100, 2001, Full text..
- E. Tuncer, Y. V. Serdyuk, and S. M. Gubanski, `Dielectric Mixtures: Electrical properties and their modeling', IEEE Transactions on Dielectrics and Electrical Insulation vol. 9 No.5, pp809-828, 2002, *arXiv:cond-mat/0111254*.
- E. Tuncer, A. O. Allakhverdiev, O. H. Guseinov and UE. Kiziloglu: `Chance Associations of X-ray sources', 2000, Doga: Turkish Journal of Physics, 24 pp 531-542, 2000, Full text.
- A. O. Allakhverdiyev, M. A. Alpar, O. H. Guseinov and E. Tuncer: 'Planetary Nebulae in Open Clusters and the Mass Boundary Between the Progenitors of White Dwarfs and Neutron Stars', Astronomical and Astrophysical Transactions vol. 16, pp 41-47 (1998).

Conference Papers

- A.O. Allakhverdiyev, F. Goek, O. H. Hueseyinov, E. Tuncer, and H. B. Oegelman, `Young pulsars and supernova remnants', in The Lives of Neutron Stars, Kemer, Turkey, 1995, Nato ASI, pp. 43-46, Kluwer Academic Publishers, The Netherlands.
- E. Tuncer, `Boundary mass problem', IXth National Astronomy Conf., Ankara, Turkey (1995) (in Turkish).
- E. Tuncer, A. O. Allakhverdiev, O. H. Guseinov and UE. Kiziloglu: `On X-ray binaries and supernova remnants', `Roentgenstrahlung from the Universe' Conf., Wuerzburg, Germany (1996).
- E.Tuncer and S.M. Gubanski, `Particle size effects in glass-bead filled silicone rubber', IEEE Int. Conf. on Conduction and Breakdown in Solid Dielectrics IEEE/ICSD, June 22-25, 2001, Eindhoven, the Netherlands.
- ____, `Filler concentration effects on losses in silicone based polymeric composites', in Conference on Electrical Insulation and Dielectric Phenomena 1999 IEEE/CEIDP October 17-20 1999, Austin TX, USA, vol. II, pp 687-690.
- ____, `On thermally stimulated depolarization currents of binary composite structures', Nordic Insulation Symposium NORD-IS 99, June 14-26, 1999, Copenhagen, Denmark, pp 223-230.
- ____, `Dielectric properties of different composite structures', in Dielectric and Related Phenomena DRP`98: Polymer and Liquid Crystals, edited by A. Wlochowicz and E. Targosz-Wrona Technical University of Lodz, Branch in Bielsko-Biala, (The International Society for Optical Engineering, Washington, 1998), vol. 4017 of Proceedings of SPIE, pp. 136-142.
- E. Tuncer, S. M. Gubanski, B. Nettelblad, H. Hillborg and K. Dowling: `Dielectric behavior of filled silicone rubbers: Effects of cross-linking agent and surface modified fillers', in Conference on Electrical Insulation and Dielectric Phenomena 2000 IEEE/CEIDP October 15-18 2000, Victoria, Canada, vol. I, pp 175-178.
- E. Tuncer, S. M. Gubanski, J. Lambrecht and R. Baersch: `Thermally stimulated depolarization currents of

silicone rubbers immersed in water', IEEE Int. Conf. on Conduction and Breakdown in Solid Dielectrics IEEE/ICSD, June 22-25, 1998, Vaesteraas, Sweden.

- E. Tuncer, Y.V. Serdyuk and S.M. Gubanski, `Comparing dielectric properties of binary composite structures obtained with different calculation tools and methods', in Conference on Electrical Insulation and Dielectric Phenomena 2001 IEEE/CEIDP October 14-17 2001, Kitchener, Canada.

Conference abstracts

- E. Tuncer, 'Low frequency dispersion in disordered binary dielectric mixtures (50-50)', 23-27 March Heriot-Watt University, The Physics Congress 2003, the Institute of Physics.
- E. Tuncer, 'Resolving distribution of relaxation times in Poly(propylene glycole)', 23-27 March Heriot-Watt University, The Physics Congress 2003, the Institute of Physics.
- E. Tuncer, `Clusters of open clusters', Astronomy posters-Abstracts, ed. Hugo van Woerden, S164.B.14., XXIInd General Assembly of Int. Astronomical Union August 15-27, 1994 The Hague, The Netherlands.

Unpublished

- E. Tuncer Effective elastic properties of two cellular structures in two-dimensions, Unpublished.
- E. Tuncer and M. Wegener, Mechanical properties of cellular structures: Simulations and comparison with experiments, Scripta Materialia (submitted).
- E. Tuncer and M. Wegener, Dielectric studies of several ferroelectric polymers, in preparation.
- E. Tuncer, M. Furlani and B.-E. Mellander, Resolving distribution of relaxation times in Poly(propylene glycole), J. Appl. Phys. submitted (2003).
- E. Tuncer, M. Wegener and R. Gerhard-Multhaupt, 'Modeling electro-mechanical properties of charged electrets', Journal of Electrostatics, submitted (2003).
- E. Tuncer, `Dielectric properties of a two dimensional binary system with ellipse inclusions', *arXiv:cond-mat/0107618*
- E. Tuncer, O.H. Guseinov and M.A. Alpar:`The boundary mass between the progenitors of white dwarfs and neutron stars', TUBITAK HEAP preprint (1996).
- E. Tuncer and O.H. Guseinov:`Clusters of open clusters', TUBITAK HEAP preprint (1996).

Reports

- M. Sjoeberg, E. Tuncer and S. M. Gubanski, `Capacitance calculations of a cable connector', June 21, 1999, Technical Report, Chalmers University of Technology.